

**NON-PROVISIONAL  
UTILITY PATENT APPLICATION  
TRANSMITTAL - 37 CFR 1.53(b)**

☒ **Duplicate**  
(check, if applicable)



Assistant Commissioner for Patent  
**BOX PATENT APPLICATION**  
Washington, DC 20231

Attorney Docket No. 08934-47U1  
**First Named Inventor: Ekkehardt Schäfer**  
**Express Mail Label No. EL329913002US**  
**Total Pages of Transmittal Form: 2**

Transmitted herewith for filing is the non-provisional utility patent application entitled:

FOOD CASING

which is:

an ☐ Original; or

a ☐ Continuation, ☐ Divisional, or ☒ Continuation-in-part (CIP)  
of prior Application No. 09/244,184, filed February 4, 1999.

☐ This non-provisional patent application is based on Provisional Patent Application  
No. , filed .

Enclosed are:

- ☒ Specification (including Abstract) and claims: 10 pages.
- ☒ Newly unexecuted Declaration (copy).
- ☐ Copy of Declaration from prior application.
- ☐ Separate Power of Attorney (including 37 CFR 3.73(b) statement, if applicable).
- ☐ sheets of drawings (formal) plus one copy.
- ☐ Microfiche computer program (Appendix).
- ☐ Nucleotide and/or Amino Acid Sequence Submission, including:
  - ☐ Computer readable copy ☐ Paper Copy ☐ Verified Statement.
- ☐ Under PTO-1595 cover sheet, an assignment of the invention.
  - ☐ Certified copy of Application No. , filed , is filed:
    - ☐ herewith or ☐ in prior application .
- ☐ Verified Statement Claiming Small Entity Status under 37 CFR 1.9 and 1.27.
  - ☐ was filed in the prior non-provisional application, and such status is still proper and desired (37 CFR 1.28(a));
  - ☐ is enclosed herewith; ☐ is no longer desired.
- ☐ Preliminary Amendment.
- ☐ Information Disclosure Statement, PTO-1449, and cited references.
- ☐ Other:

6600T 3325T460

The filing fee has been calculated as shown below:

			SMALL ENTITY			LARGE ENTITY	
CLAIMS	NO. FILED	NO. EXTRA	BASIC FEE:			BASIC FEE:	
			\$380			\$760	
Total	10-20 =	-0-	X9	\$	OR	X18	\$
Independent	1- 3=	-0-	X39	\$	OR	X78	\$
Multiple Dependent Claims Present:			\$130	\$	OR	\$260	\$
			TOTAL	\$	OR	TOTAL	\$

J0678 U.S. PTO  
09/415285



The Commissioner is hereby authorized to charge payment of the following fees or credit any overpayment to Deposit Account No. 50-1017. (**Billing No. 208934.0056**) One additional copy of this sheet is enclosed.

- ☐ The above calculated filing fee .
- ☐ Any additional fees required under 37 C.F.R. § 1.16.
- ☒ Any additional fees required under 37 C.F.R. §1.17.
- ☒ If the filing of any paper during the prosecution of this application requires an extension of time in order for the paper to be timely filed, applicant(s) hereby petition(s) for the appropriate extension of time pursuant to 37 C.F.R. §1.136(a).

**CORRESPONDENCE ADDRESS:**

October 8, 1999  
(Date)

By:

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WWS/ml  
Enclosures

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- ☐ Preliminary Amendment.
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JC672 U.S. PTO  
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09415285-100899

The filing fee has been calculated as shown below:

			SMALL ENTITY			LARGE ENTITY	
CLAIMS	NO. FILED	NO. EXTRA	BASIC FEE:			BASIC FEE:	
			\$380			\$760	
Total	10-20 =	-0-	X9	\$	OR	X18	\$
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**CORRESPONDENCE ADDRESS:**

October 8, 1999  
(Date)

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Enclosures

TITLE OF THE INVENTION

Food Casing

CROSS-REFERENCE TO RELATED APPLICATION

This is a continuation-in-part of pending U.S. application No. 09/244,184,  
5 filed February 4, 1999, which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

The invention concerns a food barrier casing (or wrapping) for food which  
is boiled, cooked or otherwise heated in the casing, in particular for sausages to be cooked  
or simmered, ham, pickled products or soft cheese.

10 In food of this type, a color and/or flavor transfer from the casing to the  
food is increasingly desired during the cooking or simmering process.

Sausages to be simmered and pickled products to be cooked are still being  
produced to a large extent, in a more or less country-specific manner, in cellulose fiber  
casings. This cellulose fiber casing has a high steam and gas permeability in order to  
15 smoke the products during the production process.

It is also known to impregnate cellulose fiber casings with liquid smoke in  
order to shorten the smoking time.

However, due to the steam and gas permeability of the casing, the  
production of food in a cellulose fiber casing is always associated with a loss in weight,  
20 taste and flavor during the production process, during cooling and during storage.

Products produced in the cellulose fiber casing thus have a very short,  
limited shelf life and must be wrapped a second time as quickly as possible after  
production by means of a barrier casing to compensate for this disadvantage. A  
recontamination or reinfection which represents a loss in quality and shortening of shelf  
25 life can also not be ruled out with the additional casing and, moreover, involves additional  
costs.

To avoid the disadvantage of steam and gas permeability, plastic casings were developed, especially for big industry, comprising materials which have a steam and gas impermeability, so-called cook + ship, i.e. cooking and shipping without an additional second casing.

5 When using plastic casing of this type, there is no loss in weight, flavor and taste during the production process nor during storage and shipping, however, the finished product does not have the typical smoked taste which consumers desire and expect in many products.

10 The impregnation of pure plastic casings with flavors was also not successful since the plastics used cannot adequately absorb and store impregnating agents, and these are stripped off again during manufacture and when filling the plastic casings, since it cannot be absorbed and stored in a sufficient amount by the plastic layers.

15 In order to lend the product finished in the plastic casing the desired smoked taste and the typical color, the plastic casing must be removed after the production process and the product smoked in a conventional manner or processed with liquid smoke. In this subsequent process, there is again the possibility of a loss in weight, flavor and taste, in addition to the danger of recontamination and reinfection, and a second casing is again absolutely imperative after the processing.

## SUMMARY OF THE INVENTION

20 Therefore, an object of the present invention is to provide a food barrier casing which exhibits, on the one hand, high density but, on the other hand, also good absorption power and storage capacity for the desired flavors and/or coloring agents and distinguishes itself by a later, sufficient transfer of these substances to the food product.

25 According to the present invention, this object is solved in that the casing comprises at least one steam and/or gas impermeable foil and has an absorbent inner layer connected therewith comprising individual fibers or a weave, fabric, knit, preferably a fleece, and that this inner layer is impregnated with coloring agents and/or flavoring agents.

30 First of all, this inner layer has the advantage of a high absorptivity and retainability for the colors and/or flavors. Moreover, tests by the applicant have shown

that a substantially improved transfer of these substances to the food takes place during the subsequent cooking or boiling process compared to conventional casings, since the impermeability of the casing vis-à-vis steam, preferably also vis-à-vis gas, prevents the color or flavors from being washed out during the cooking process.

5 It was surprisingly shown that unusually thin wall thicknesses on the order of several hundredths mm to 1/10 mm are already sufficient for the inner layer to absorb the coloring and/or flavoring agents. For this reason, it is especially advantageous if the inner layer comprises individual fibers or a thin fleece. Cotton fibers, cellulose fibers, also regenerated cellulose fibers, viscose fibers or mixtures thereof are recommended as  
10 material herefor. An optimum storage capacity for the coloring or flavoring agents is attained thereby with little material inventory.

Advantageously, the inner layer is connected with the casing by lamination and/or coating, so that a one-piece easy-to-handle laminate is obtained. An adhesive can also be used for the connection. Extruded polyethylene in an almost liquid  
15 form is especially suitable as adhesive. The absorbent material of the inner layer is laminated to the inner side of the casing by means of this extruded polyethylene.

#### BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

The foregoing summary, as well as the following detailed description of the invention, will be better understood when read in conjunction with the appended  
20 drawings. For the purpose of illustrating the invention, there are shown in the drawings embodiment(s) which are presently preferred. It should be understood, however, that the invention is not limited to the precise arrangements and instrumentalities shown. In the drawings:

Fig. 1 is a cross section through the casing with an inner layer; and

25 Fig. 2 is a top view onto a casing in the form of a bag.

#### DETAILED DESCRIPTION OF THE INVENTION

According to Figure 1, the casing, wrap or wrapper has a barrier casing 1 on the outside. It comprises two outer polyethylene layers 1a, 1c and an intermediate layer 1b of polyamide. The function of the barrier casing is to protect the food so as to be

airtight and gastight, especially against steam and oxygen, so that the food is not washed out during the cooking or boiling process, i.e., it does not lose flavor or color.

Advantageously, the barrier casing is shrinkable, by means of which a crease-free end product results. Moreover, there is no loss in weight at all during the manufacturing process, storage and transport.

On its inner side, the described barrier casing 1 is coated with an absorbent inner layer 2, e.g., a fleece comprising cellulose fibers. It serves as a carrier for the desired coloring and/or flavoring agents. This could be caramel, aromatic extracts, smoke components, liquid smoke, marinades, fruit flavors and other substances allowed under the regulations governing food. They can be continuously applied to the absorbent inner layer 2 either by a spray tube, along which the casing shaped in the form of a tube is guided, or by a liquid bath along which the inner wall of the casing slides, or by means of a liquid bubble which is conveyed through the casing.

Instead of this, the inner layer 2 can also be imprinted with the desired coloring and/or flavoring agents in a flat form. After drying, the foil is given the tubular shape by means of a heat-sealable, heat-resistant adhesive tape or by heat-sealing at the overlapping edges.

The impregnated casing can be used and processed both in the wet and dry state. If the casing is to be dried after absorbing the coloring and/or flavoring agents through the absorbent inner layer, the use of colors and/or flavors which do not become volatile during drying is recommended.

All of the preceding material layers are laminated to form a film whereby, advantageously, an adhesive agent is used. Its overall thickness is generally less than 1/10 mm. Thus, the thickness of the two polyethylene layers 1a and 1c is 10 to 60 microns in each case, the thickness of the intermediate layer 1b comprising polyamide being 10 to 20 microns. The polyethylene layer 1c facing the food is advantageously extruded wet onto the layers 1a and 1b already joined together, so that it functions as an adhesive for the absorbent layer 2 to be subsequently applied.

For the inner layer 2, it is recommended that the absorbent material, i.e., the fleece, the fibers or the like, be applied in a material thickness of about 10 to about 30 g/m<sup>2</sup>. This absorbing layer is then impregnated with the desired flavors or color carriers



and produced, if necessary, in the form desired by the customer.

Figure 2 shows the casing in the form of a bag. For this purpose, the casing is first given a tubular form and joined together at the overlapping longitudinal edges by a band 3 sealable under heat. This band 3 is at least heat-sealed with the layer 1a of the barrier casing 1.

At the lower end, the casing is sealed with a corresponding band 4, whereby the lower edge is, for example, folded over by 180° to ensure a tight heat-seal.

Special machines are required to attach the bands 3 and 4, and they are often not available to the manufacturer of the casing, i.e., the butcher's shop. For this reason, the bag 5 thus formed has an excess length 6 at its open upper edge which extends over the entire periphery and is connected with the bag by means of a sealable band 7. This excess length 6 does not have an absorbent inner layer 2 like the bag 5 but consists only of an easily heat-sealable plastic material, in particular polyethylene, which can be easily sealed by the customer to seal the bag 5 after it has been filled with the meat and evacuated.

### TEST EXAMPLE

After the casing was impregnated with liquid smoke, a fine sausage emulsion was filled in, sealed by means of an aluminum clip and boiled. The casing or  
5 sausage filled in this way had a diameter of 80 mm.

The results were as follows:

### TEST RESULTS

Control parameters Casing	Smoke taste	Loss in weight	Production time
smoked + boiled cellulose fiber casing	good	8%	100 min.
barrier casing with absorbent inner layer impregnated with smoke	very good	0%	60 min.
cellulose fiber casing impregnated with smoke	sufficient smoke taste	5%	80 min.
barrier casing without absorbent inner layer impregnated with smoke	no smoke taste can be ascertained	0%	60 min.

In summary, the invention offers the advantage that the flavor and/or the color, etc. is maintained on the inner side of the casing in high doses, is not lost when the casing is gathered and filled, and is reliably transferred to the food contained therein during the cooking or boiling process. Since the outer layers of the casing are impermeable, the substances cannot be rinsed out during the boiling process. No losses in weight, taste and flavor result during the production and boiling process or during transport and storage, and the production time remains short. The product can be delivered directly to the end user without a second casing.

It will be appreciated by those skilled in the art that changes could be made to the embodiment(s) described above without departing from the broad inventive concept thereof. It is understood, therefore, that this invention is not limited to the particular embodiment(s) disclosed, but it is intended to cover modifications within the spirit and scope of the present invention as defined by the appended claims.

## CLAIMS

We claim:

1. A food barrier casing for food stuffs to be boiled, cooked or otherwise heated in the casing, wherein the casing comprises at least one steam and/or gas impermeable foil (1) and has an absorbent inner layer (2) joined with it and comprising fibers in a form selected from the group consisting of individual fibers, woven fibers, fabric, knits, and fleece, and wherein said inner layer (2) is impregnated with coloring and/or flavoring agents.
2. The barrier casing according to claim 1, wherein the inner layer (2) comprises fibers selected from the group consisting of cotton fibers, cellulose fibers, regenerated cellulose fibers, viscose fibers, and mixtures thereof.
3. The barrier casing according to claim 1, wherein it comprises a shrink foil which shrinks in a temperature range of about 70° C to about 90° C.
4. The barrier casing according to claim 1, wherein the casing (1) is coated with the absorbent inner layer (2) to form a laminate.
5. The barrier casing according to claim 1, wherein the inner layer (2) is joined with the adjacent layer (1c) of the casing by an adhesive.
6. The barrier casing according to claim 5, wherein the adhesive comprises extruded polyethylene.
7. The barrier casing according to claim 1, wherein on its outer side the casing (1) comprises at least one tight plastic foil (1a) joined together so as to be flat, the foil being selected from the group consisting of polyethylene foil and polyamide foil.
8. The barrier casing according to claim 1, wherein the casing (1) comprises two polyethylene foils (1a, 1c) and a polyamide foil (1b) between them, wherein the polyethylene foil (1c) allocated to the inner side of the casing is extruded on wet and functions as an adhesive for the absorbent inner layer (2) subsequently applied.

9. The barrier casing according to claim 1, wherein it has the shape of a bag (5) and an excess length (6) at its open end, said excess length being made without an absorbent inner layer and comprising a heat-sealable plastic foil.

10. The barrier casing according to claim 1, wherein the foodstuffs are selected from the group consisting of sausages to be cooked or simmered, ham, pickled products, and soft cheeses.

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## ABSTRACT OF THE DISCLOSURE

A food barrier casing is provided for food which stuffs are to be boiled or cooked in the casing, in particular for cooking or simmering sausages, ham, pickled products or soft cheeses. The casing has an inner layer firmly connected with it comprising absorbent material and this inner layer is impregnated with coloring and/or flavoring agents.

5

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Fig. 1

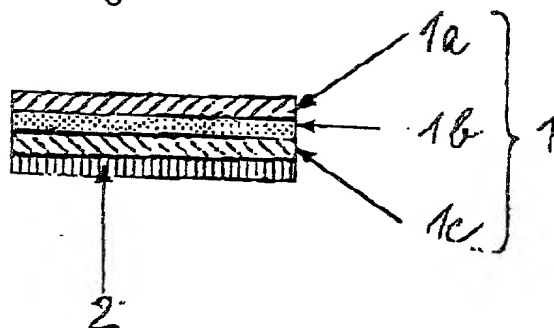
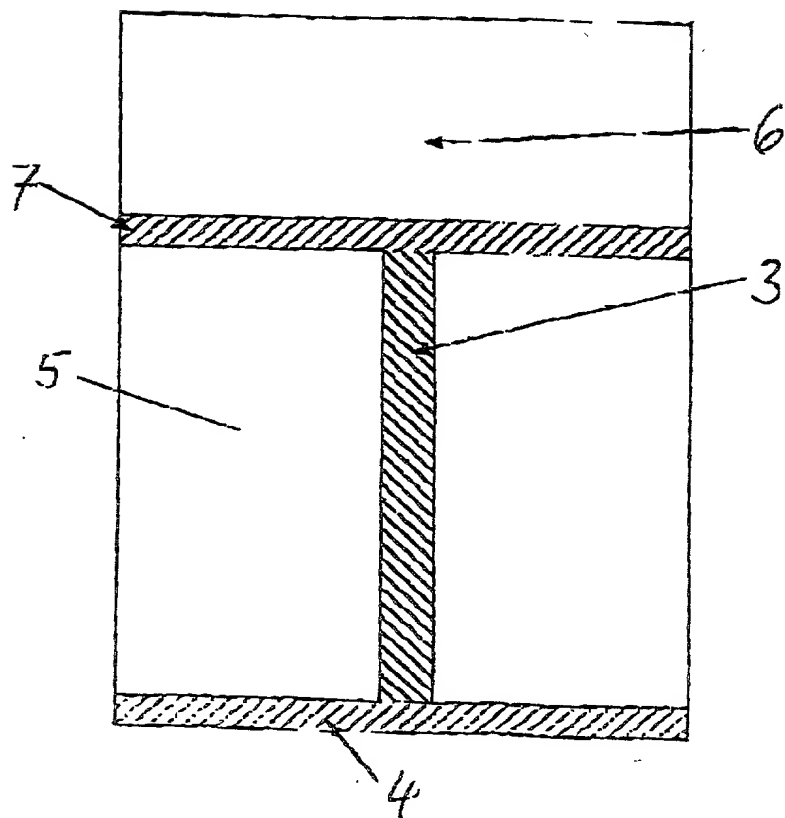


Fig. 2



**DECLARATION AND POWER OF ATTORNEY**  
(Related Application)

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

**FOOD CASING**

the specification of which is attached hereto and/or was filed on \_\_\_\_\_ as Application No. \_\_\_\_\_.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to herein.

I acknowledge the duty to disclose information which is material to patentability in accordance with Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d), of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:



1990-1991	1.00
1991-1992	1.00
1992-1993	1.00
1993-1994	1.00
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2133-2134	1.00
2134-2135	1.00
2135-2136	1.00

			<b><u>Priority Claimed</u></b>
(Number)	(Country)	(Day/month/year field)	<input type="checkbox"/> Yes <input type="checkbox"/> No

**PROVISIONAL PRIORITY PATENT APPLICATION**

I hereby claim the benefit under Title 35, United States Code, Section 120, of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application or in the prior U.S. provisional application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose information material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56, which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

09/244,184                      February 4, 1999                      Pending  
(Application Serial No.)                      Filing Date)                      (Status)--(patented, pending, abandoned)

(Application Serial No.)                      (Filing Date)                      (Status)--(patented, pending, abandoned)

And I hereby appoint the registered attorneys and agents associated with **AKIN, GUMP, STRAUSS, HAUER & FELD, L.L.P.**, Customer No. 000570, as my attorneys or agents with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

Address all correspondence to **Customer No. 000570, namely, AKIN, GUMP, STRAUSS, HAUER & FELD, L.L.P.**, One Commerce Square, 2005 Market Street, Suite 2200, Philadelphia, Pennsylvania 19103. Please direct all communications and telephone calls to **WILLIAM W. SCHWARZE** at (215) 965-1270.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Full name of second joint  
inventor, if any                      Ekkehardt Schäfer

Inventor's Signature                      \_\_\_\_\_

Date                      \_\_\_\_\_

Residence                      Karlsruhe, Germany

Citizenship                      German

Post Office Address                      Parkstrasse 21

D-76131 Karlsruhe, Germany

Full name of sole  
or first inventor

Tomoyoshi Nohmi

Inventor's Signature

Date

Residence

Kobe-City, Japan

Citizenship

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